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Remarks

Thorough examination by the Examiner is noted and appreciated.

The claims have been amended to clarify Applicants disclosed invention. No new matter has been added.

Support for claim amendments is found in the original claims and in the Specification.

For example, support for the amendments is found in the Specification at paragraphs 0023 and 0024:

"In one embodiment, the present invention is generally directed to a novel method for ensuring proper positioning of substrates on a substrate support in a process or measuring tool to facilitate optimum processing or measurement of the substrates. The method includes providing alignment marks on a control substrate; establishing homing x and y coordinates for each of the alignment marks when the substrate transfer and/or positioning equipment of the tool is calibrated to place the control substrate at a homing position which corresponds to a position conducive to optimum processing and measurement of actual substrates; periodically positioning the control substrate on the substrate support using the substrate transfer and/or

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positioning equipment of the process or measuring tool to establish test x and y coordinates for each of the alignment marks; **determining displacement distances between the homing x and y coordinates and the test x and y coordinates, respectively;** determining whether the displacement distances fall within an acceptable deviation range; and **re-calibrating the automated substrate positioning equipment** back to the homing position in the event that the displacement distances fall outside the acceptable deviation range.

The method may further include establishing a homing radial orientation of at least one of the alignment marks when the substrate is at the homing position on the substrate support; periodically positioning the control substrate on the substrate support using the substrate transfer and/or positioning equipment of the process or measuring tool to establish a test radial orientation for the alignment mark or marks; determining a radial orientation shift between the homing radial orientation and the test radial orientation; determining whether the radial orientation shift falls within an acceptable deviation range; and **re-calibrating the automated substrate transfer and/or positioning equipment** back to the homing position in the event that the radial orientation shift falls outside the acceptable deviation range."

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Claim Rejections under 35 USC 102

1. Claims 17 and 18 stand rejected under 35 USC 102(b) as being anticipated by Matsuchima (U.S. Patent No. 6,339,730)

Matsuchima disclose an apparatus that determines a position of a substrate during transfer of a substrate to a substrate support for processing (see Abstract; col 1, lines 51-58; col 2, lines 24-55). The offset of the substrate during transfer by the transfer mechanism is determined by holding the substrate by the transfer mechanism in a first intermediate transfer position (standby space) and determining a first position **of the perimeter of the substrate** (col 3, lines 30-42), moving the object to a second intermediate transfer position and determining a second position of the **perimeter of the substrate**, and then correcting the transfer mechanism prior to transferring the substrate into a processing vessel (on a substrate support for processing) (col 3, lines 55-59).

Thus, Matsuchima fails to disclose several aspects of Applicants disclosed and claimed invention including:

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"A method for testing a transfer position of a substrate on a substrate support following transfer of said substrate to said substrate support, said substrate support for supporting said substrate during processing, comprising the steps of:

providing a control substrate having first and second alignment marks;

providing said control substrate in a homing position on the substrate support;

providing said control substrate in a test position on the substrate support; and

measuring a displacement between said first alignment mark at said homing position of said control substrate and said first alignment mark at said test position of said control substrate."

Matsuchima does not disclose "testing a transfer position of a substrate on a substrate support".

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Matsuchima also does not disclose determining a position of the substrate following transfer for processing.

Matsuchima also does not disclose a control substrate.

Matsuchima also does not disclose alignment marks.

Matsuchima also does not disclose providing a control substrate at two different positions (homing position and test position) on a substrate support.

Matsuchima is clearly insufficient to anticipate Applicants disclosed and claimed invention.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

"The identical invention must be shown in as complete detail

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as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claim Rejections under 35 USC 103

1. Claims 1-16, 19, and 20 stand rejected under 35 USC 103(a) as being anticipated by Matsuchima, above, in view of Cheng et al. (US 6,357,131).

Applicants reiterate the comments made above with respect to Matsuchima.

Cheng et al. disclose a method for determining the accuracy of alignment of a wafer **at a single position by overlaying two images**. The position of **alignment marks on a wafer relative to a pattern provided on the surface of a control wafer** is measured (see Abstract). Cheng et al. accomplish this process by double exposing a photoresist layer (col 4, lines 63-55; col 5, lines 66- col 6, line 12).

There is not apparent motivation for combining the teachings of Cheng et al. and Matsuchima other than Applicants disclosure. For example, the wafer alignment method of Cheng et al. is

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inconsistent with the wafer alignment correction method **during wafer transfer** and apparatus of Matsuchima, who measures a **position of a substrate (wafer) periphery with respect to an intermediate transfer position**. Any attempt to modify the method of Matsuchima with the method of Cheng et al. to achieve Applicants disclosed and claimed invention would render both the methods of Cheng et al. and Matsuchima unsuitable for their intended purpose. For example, using alignment marks in the method of Matsuchima would be superfluous and unworkable since Matsuchima **determines a position of the periphery of the wafer (substrate)**. Moreover, attempting a double exposure on the substrate of Matsuchima to determine a **single position** of the wafer **in an intermediate wafer transfer space** would make unworkable the method of Matsuchima requiring determination of the wafer position **in two different intermediate substrate transfer positions**.

Even assuming *arguendo* a proper motivation for combination, such combination does not produce Applicants disclosed and claimed invention.

Moreover, the combined teachings of Matsuchima and Cheng et

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al. do not recognize or provide a solution to the problem that Applicants have recognized and solved by their disclosed and claimed invention:

"A method for testing a transfer position of a substrate on a substrate support following transfer of said substrate to said substrate support, said substrate support for supporting said substrate during processing"

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The Claims have been amended to clarify Applicants disclosed

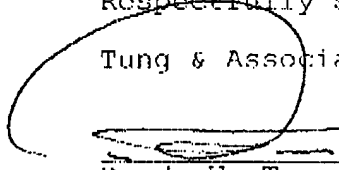
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and claimed invention and distinguish over the applied art. Based on the foregoing, Applicants respectfully submit that the Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention as claimed is not in condition for allowance for any reason, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

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